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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,388	04/19/2001	Jac Yoon Lee	2658-0234P	7290
2292 7590 08/10/2007 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			EXAMINER LIN, JAMES	
			ART UNIT 1762	PAPER NUMBER
			NOTIFICATION DATE 08/10/2007	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	09/837,388	LEE ET AL.	
	Examiner	Art Unit	
	Jimmy Lin	1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9,10,12-16 and 18-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9,10,12-16 and 18-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 6/25/2007 has been entered.

Definitions

2. "Letterpress" is defined by Merriam-Webster's Collegiate Dictionary, 10 edn., as "the process of printing from an inked raised surface esp. when the paper is impressed directly on the surface" (in contrast to "intaglio": "printing (as in die stamping and gravure) done from a plate in which the image is sunk below the surface"). "Flexography" is defined as "a process of rotary letterpress printing using flexible plates and fast drying inks".

Claim Objections

3. Claim 26 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Parent claim 9 already requires the lands to have a plurality of indentations.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 9-10, 12-16, 18-26 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the

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relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

There is no support for convex portions having a plurality of indentations for *picking up the electroluminescent material firmly* (claim 9). The specification only seems to only teach that the plurality of indentations are used to help the lands 12 pick up and retain a greater amount of polymer material from contact with the supply roller 8 (pg. 6, lines 15-19).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pei et al. (U.S. Patent No. 5,682,043) in view of Wright (U.S. Patent No. 3,661,081), and Miyashita et al. (WO 98/24271, references made are to the English equivalent U.S. Publication No. 2001/0001050). Ireton (U.S. Patent No. 4,611,539) is cited as evidence.

Pei teaches a method of patterning an electroluminescent (EL) display (cols. 1-2), comprising:

flexographic printing a semiconductor polymer ink (col. 10, lines 14-28), which is the light-emitting layer (col. 7, line 13-col. 9, line 28).

Ireton teaches that flexography is understood in the art to mean

providing a flexible printing plate (i.e., a molding plate) adhered to (i.e., disposed on) a plate cylinder or printing roller (i.e., a molding roller), said molding plate having a raised image (i.e., convex and concave portions, with the convex portion (the raised image) defining lands), applying the ink to the raised portion (i.e., each land of the convex portion of the molding plate) and printing the ink from the molding plate onto a substrate by rotating the roller so that the land on each convex portion contacts the substrate.

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Pei (and the definition given by Ireton) does not explicitly teach a plurality of convex and concave portions. However, Pei does indicate that different inks may be desired in different locations (col. 7, lines 12-20). Wright illustrates a flexographic process and makes it clear that there may be a plurality of convex printing portions (5) and concave non-printing portions (6). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a flexographic plate with a plurality of convex and concave regions with a reasonable expectation of success because Pei indicates that areas with different properties are desired and because Wright teaches that a method of depositing inks in desired areas is to have a plurality of convex and concave regions.

Pei teaches that different materials may be printed in different locations, for example, to apply different colors (col. 7, lines 12-21), but does not explicitly teach the use of barrier ribs between pixels. However, Miyashita teaches that it is well known in the art of EL devices to use barrier ribs 805 between pixels of different colors in order to provide contrast between the pixels. The pixel electrodes 801,802,803 can be formed between the barrier ribs. The upper portions of the ribs are in contact with the pixel electrodes and the EL material (Fig. 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have used the method of Pei and Wright to have printed pixels on electrodes between barrier ribs. One would have been motivated to have provided barrier ribs in order to have increased the contrast of the colors. The barrier ribs would have necessarily prevented the spread of the EL material.

Pei teaches that the polymer may be applied in solution (col. 10, lines 14-17).

8. Claims 9-10, 12-16, 18, 20, 22, and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, and Miyashita '271 as applied to claim 27 above, and further in view Samworth (U.S. Patent No. 6,213,018).

Pei, Wright, and Miyashita are discussed above.

Pei and Wright teach a flexographic plate (i.e., a rolling stamping member), but do not explicitly teach that the convex printing portions have a plurality of indentations. However, Samworth teaches that it was well known in the art of flexographic printing to have provided a plurality of indentations on the convex lands (col. 5, lines 1-5; Fig. 2). Therefore, it would have

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been obvious to one of ordinary skill in the art at the time of invention to have provided a plurality of indentations on the convex printing portions of Pei and Wright with a reasonable expectation of success because Samworth teaches that such configurations of the convex printing portions are operable for flexographic plates. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness.

Sinclair & Carroll Co. v. Interchemical Corp., 325 U.S. 327, 65 USPQ 297 (1945).

Claim 10: Miyashita teaches that red, green, and blue pixel patterns are formed (Fig. 4; [0013]).

Claim 12: Miyashita teaches that the barrier ribs define boundaries between pixels [0044]-[0045].

Claim 13: Miyashita teaches that an upper portion of the barrier rib overlaps an edge on the pixel electrode (Fig. 4).

Claim 14: Miyashita teaches that the height of the barrier rib can be larger than the combined thickness of the EL material and pixel electrode (Fig. 4).

Claim 16: Miyashita teaches that the barrier rib can be formed from a polyimide material [0046].

Claim 18: Wright teaches that the ink may be supplied to the convex portions of the flexographic roller by rotating it and a supply roller (9) (Fig. 1, col. 3, lines 41-49).

Claim 22: Pei teaches that the layer may be 500 angstroms thick (col. 11, lines 11-13).

Claim 25: Pei teaches that the substrate may be glass (col. 12, lines 27-30).

Claim 26: Samworth teaches the convex portions can have a plurality of indentations.

9. Claim 15 rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, Miyashita '271, and Samworth '018 as applied to claim 9 above, and further in view of Kimura (EP 0 862 156).

Pei, Wright, Miyashita, and Samworth are discussed above. Miyashita teaches that the barrier ribs can be made of glass, but does not explicitly teach that the glass can be a material such as SiO₂. However, Kimura teaches that it is well known to use SiO₂ (i.e., a type of glass material) as the particular material for forming barrier ribs in an EL device (col. 19, lines 45-49; col. 29, lines 38-43). Therefore, it would have been obvious to one of ordinary skill in the art at

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the time of invention to have used SiO₂ as the particular glass material for forming the barrier ribs of Miyashita with a reasonable expectation of success because Kimura teaches that such materials are operable in the art. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

10. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, Miyashita '271, and Samworth '018 as applied to claim 18 above, and further in view of Mourrellone (U.S. Patent 4,542,693, hereafter '693).

Pei, Wright, Miyashita, and Samworth are discussed above. Wright teaches that the amount of ink on the supply roller may be controlled, but the references do not explicitly teach causing the EL material to have a uniform thickness on the supply roller.

Mourrellone teaches for a device comprising a letterpress (col. 1, lines 1-16) ink cylinder (T) and supply roller (A) that the provision of an equalizing roller (9) that provides an ink layer of uniform thickness on supply roller (A) (claim 8) advantageously improves the regularity of ink application and avoids the formation of undesired stripes (col. 7, lines 10-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have caused the EL ink of Pei to have had a uniform thickness on the supply roller by using the equalizing roller of Mourrellone because Mourrellone teaches that such an equalizing roller would have improved the regularity of the ink application and avoided the formation of undesired stripes.

11. Claims 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, Miyashita '271, and Samworth '018 as applied to claim 9 above, and further in view of Nagayama et al. (U.S. Patent No. 5,701,055, hereafter '055).

Pei, Wright, Miyashita, and Samworth are discussed above, but do not explicitly teach that the barrier ribs are in the form of a stripe (claim 20) or a matrix (claim 21). However, Nagayama teaches that barrier ribs in an EL device can be either a stripe shape or a matrix shape (Figs. 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to have formed the barrier ribs of Miyashita in either a stripe shape or a matrix

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shape with a reasonable expectation of success because Nagayama teaches that either shapes are operable in an EL device. The selection of something based on its known suitability for its intended use has been held to support a prima facie case of obviousness. *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945).

12. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pei '043 in view of Wright '081, Miyashita '271, and Samworth '018 as applied to claim 9 above, and further in view of Watanabe et al. (U.S. Patent 5,270,846, hereafter '846).

Pei, Wright, Miyashita, and Samworth are discussed above. Wright teaches that flexographic inks assume level surfaces (col. 1, lines 23-26), but does not explicitly teach that the ink levels after printing. However, Watanabe also teaches that inks printed from rollers may also be leveled after printing (col. 12, lines 28-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have leveled the surface on the ink after printing in order to have achieved the desired thickness.

Claim 24: Pei teaches that the layers are heated after printing (col. 11, lines 11-15).

Response to Arguments

13. Applicant's arguments filed 6/25/2007 have been fully considered but they are not persuasive.

The Applicant argues on pg. 8 that Samworth does not teach the land and groove structure for printing electroluminescent material, but just teaches about the flexographic printer with a plurality of ink-containing cells having honey-comb shaped array. Although, Samworth does not teach the use of an EL material with the flexographic printer, one of ordinary skill in the art would have reasonably expected the flexographic plate of Samworth to work in the flexographic printing of Pei and Wright with predictable results. Therefore, one of ordinary skill in the art would have modified the flexographic plate of Pei and Wright to have included the honey-comb shaped array of Samworth with the intention of depositing EL material.

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Conclusion


14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bayer, Jr. (U.S. Patent No. 5,597,618) and Pappas et al. (U.S. Patent No. 5,162,119) are cited for their teachings regarding the relative orientation of substrates and printer rollers. Maracas et al. (U.S. Patent No. 6,013,446) teaches indentations on the convex portions of a stamp can increase the absorbency of the stamp (col. 5, lines 51-61; Fig. 11).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jimmy Lin whose telephone number is 571-272-8902. The examiner can normally be reached on Monday thru Friday 8AM - 5:30PM.

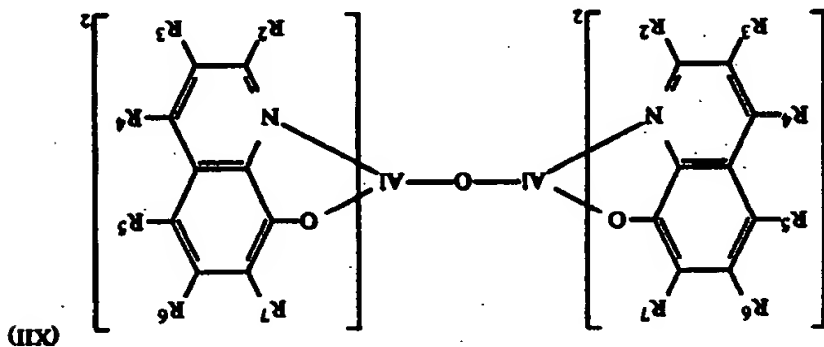
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on 571-272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JL
JL


TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER

use of these compounds in organic EL devices is taught and in a specific preferred form satisfy the formula:



by Vanslyke U.S. Pat. No. 5,151,629. These compounds broadly satisfy the formula:

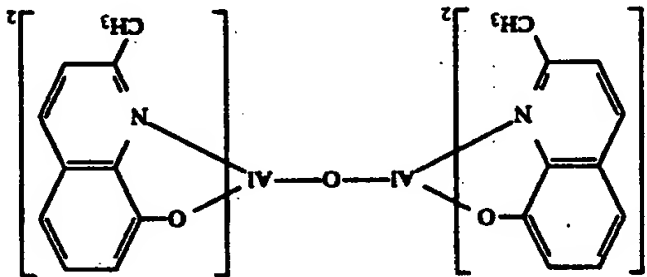
(R'-Q)₂-Al-O-Al-(Q-R')₂

(XI)

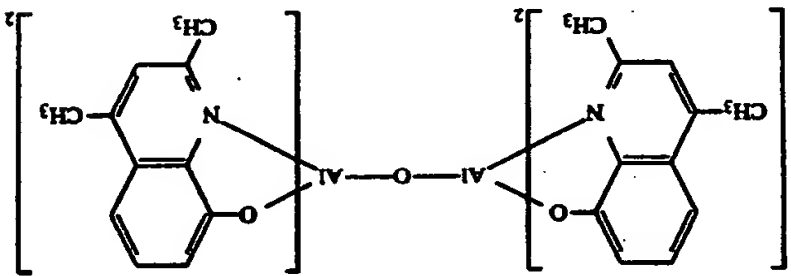
where Q, R' and R₂ to R₇ are as previously described in connection with formulae VIII and X.

The following constitute specific examples of preferred compounds satisfying formulae XI and XII:

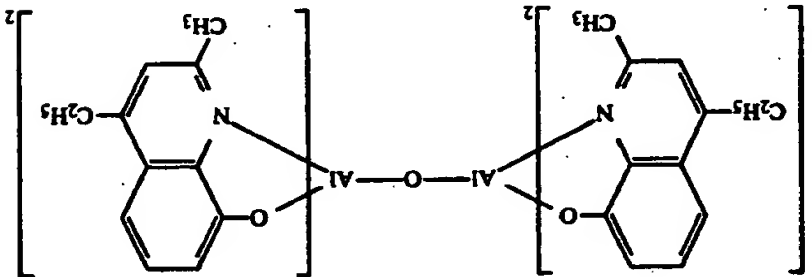
BA-1 Bis(2-methyl-8-quinolinolato)aluminum(III)-μ-oxo-bis(2-methyl-8-quinolinolato)aluminum(III)



BA-2 Bis(2,4-dimethyl-8-quinolinolato)aluminum(III)-μ-oxo-bis(2,4-dimethyl-8-quinolinolato)aluminum(III)



BA-3 Bis(4-ethyl-2-methyl-8-quinolinolato)aluminum(III)-μ-oxo-bis(4-ethyl-2-methyl-8-quinolinolato)aluminum(III)



BA-4 Bis(2-methyl-4-methoxyquinolinolato)aluminum(III)-μ-oxo-bis(2-methyl-4-methoxyquinolinolato)aluminum(III)